



Spectrum and Adobe Premiere Pro CS 4/Matrox Axio LE 4

Format Compatibility of OP1a SD LGOP 10 Mbps

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Introduction

This document presents the results of a successful compatibility test performed for one of Omneon's customers. The customer already used Spectrum in combination with Adobe Premiere Pro and Matrox Axio LE, and asked Omneon to test with the latest versions of these two products.

The tests focused on format compatibility only and did not include Edit-In-Place with Spectrum or Omneon MediaGrid.

Adobe Premiere Pro CS4 and Matrox Axio LE

Premiere Pro is Adobe's non-linear editing system for video production. It is part of Adobe's Creative Suite, often referred to by its acronym "CS". As part of CS version 4 the full name of Premiere Pro is "Adobe Premiere Pro CS4". The CS4 suite includes several other components such as Photoshop and After Effects. This document refers to Adobe Premiere Pro CS4 as "Premiere Pro".

Premiere Pro can run on Windows and OS-X. This document is only concerned with Windows.

Matrox Axio LE is a hardware-based engine that enhances Premiere Pro with additional editing formats, video effects, audio and video in- and outputs and other features. This document refers to Matrox Axio LE as "Axio". Of particular interest for this test is that Axio adds codecs for a number of Spectrum-native formats. For this test the video format chosen is

OP1a-wrapped MPEG LGOP 10 Mbps (SD) at 29.97 fps.

This document does not consider Premiere Pro without Axio. The results presented here only hold for Premiere Pro with Axio.

Workflow

The workflow used by the customer is a transfer model workflow where material ingested with Spectrum is transferred to storage that is local or local attached to the Adobe / Matrox NLE workstation. Editing happens from this storage, or in other words, there is no Edit-In-Place with Spectrum. Finished sequences are rendered onto local or local attached storage and then transferred to Spectrum for play out.

Test cases

The following cases were tested

- **Importing of source clips into the project bin.**
Several source clips generated with Spectrum were copied to the local hard drive of the workstation and then imported into the bin of the Premiere Pro project. This included clips longer than one hour. It was observed that all durations were correct and first and last frame of each clip corresponded with what was seen on play out with Spectrum.
- **Source clip play back.**
Play back on the NLE of the source clips worked well, including the use of J-K-L keys. With these keys the user can get audio at speeds faster than real time, also in reverse.
- **Source clip scrubbing.**
Scrubbing worked well and appeared to have improved from version 3. Audio is supported during scrubbing unless scrubbing is going too fast.

- [Creating and playing back sequences.](#)

Several two-layer sequences were created and played back without problems.

- [Sequence export.](#)

The Adobe Media Encoder was used to successfully export the sequences to the local hard drive in the same format as the source clips. A cuts-only sequence rendered at real-time speed whereas a two-layer sequence with continuous dissolves rendered half as fast. CPU load on the PC was low. Durations of the exported sequences were correct and start and end frames matched with the original sequences on the timelines.

- [Direct export to Spectrum.](#)

Exporting to local HDD versus Spectrum did not seem to make a difference in performance.

- [Play out with Spectrum.](#)

Play out worked fine and start and end frames matched with the sequences in Premiere Pro 4. Several short sequences as well as one longer than an hour were tested.

Notes and observations

The following is a set of notes and observations of interest.

- Users of Axio should be aware that version 4 may need a different workstation slot configuration than version 3. Matrox publishes the qualified configurations on their web site.
- Premiere Pro needs to be upgraded to version 4.1.0, and Axio LE Utils to 4.1.0.25. The earlier combination of 4.0.1 and 4.0.0.343 has an issue with exports. The Axio 4.1.0.25 Utils upgrade is located in the download section of the Matrox web site. It is called the Axio LE Utils 4.1 upgrade and was released on August 4.
- The tests were done with the updated Adobe Media Encoder (AME) version 4.1.0.107, but the version that came with Premiere Pro 4.0.1, version 4.0.2.002, appears to work correctly.
- During the tests the VBI data was visible in the source and sequence monitors. Presumably this was a set up issue.
- During the tests the source monitor consistently showed the first field of each frame whereas the sequence monitor consistently showed the second. Presumably this too was a set up issue.
- The name given by the NLE to exported sequences is the name entered in the Matrox export settings window that is reached through Export Settings > Video tab > Configure button. The name entered on the Export Settings main page itself is not used.
- Exported sequences are stored with lowercase .mxf extension, convenient for Spectrum play out. This also happens when an uppercase .MXF is used in the name. The name itself always gets converted to uppercase.
- When exported sequences are re-imported into Premiere Pro, the duration, expressed in time code, can be off by a few frames compared to the duration of the original sequence. However all frames are present and if the duration is expressed as a number of frames (there is a switch in the GUI) then the two durations are equal.
- During the tests, Premiere Pro became unresponsive on one occasion, right at the start of encoding (rendering) of a sequence of more than 1 hour. When the same steps were repeated the event did not re-occur. Export of several other long sequences was tested successfully as well.

System specifications

Spectrum	
Firmware	5.3.1.4
Wrapper	MXF OP1a
Video	MPEG-2 LGOP, 29.97, 720 x 525, 10 Mbps, 4:2:2
Audio	2 channels, stereo, 24 bit, aiff
NLE hardware	
Model	HP xw6600
CPU	Dual quad-core Xeon E5440 @ 2.83 GHz
RAM	4 GB
Graphics card	Radeon X1950 Pro
Slot config	Per Matrox recommendation (see Matrox web site)
Media storage	Second local hard drive
Premiere Pro	
Version	4.1.0
Playback settings:	Checkbox [Create audio conform and PEK files] is turned OFF Checkbox [Create PEK files] is turned OFF Checkbox [Optimize memory usage] is turned OFF
Export settings:	Matrox MXF File type: Generic OP1a Compressor: NTSC Matrox MPEG-2 Compression Type: IBP 10 Mbps CBR GOP Structure: 15:3 Profile: 4:2:2
Adobe Media Encoder	
Version	4.1.0.107
Matrox Axio LE	
Axio.utils	Version 4.1.0.25



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